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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,755	03/15/2004	Abdus Suttar Khan	033275-426	2055

21839 7590 06/07/2006

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EXAMINER
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IVEY, ELIZABETH D

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/799,755

Applicant(s)

KHAN ET AL.

Examiner

Elizabeth Ivey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 15 March 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

The traversal is not found persuasive. The applicants have not suggested or argued why the proposed alternative process would not be a materially different process. The traversal is on the ground(s) that that no burden exists in searching the entire application. This is not found persuasive because the examiner has shown that subject matter of the two groups encompass two different statutory classes of invention each having a different classification. For purposes of the initial requirement of a restriction, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

Claims 9-13 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). In order to further examination, the claims have been interpreted to depend to claim 6.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 9 recites the broad recitation thickness upto 400µm, and the claim also recites 5-250µm, which is the narrower statement of the range/limitation. In order to further examination , examiner interprets as the broadest range of upto 400µm.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,453,329 to Everett et al in view of U.S. Patent 5,223,332 to Quets.

Regarding claims 6-7 and 13, Everett discloses gas turbine engine seals between two super alloy engine parts that are generally made from a predominance of nickel or cobalt, (blades and casings), said seals comprising a coating of a metal matrix such as cobalt having dispersed particles of abrasives such as chromium carbide in the matrix. (column 1 lines 25-29 column 3

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lines 24-28 and 37-40 and column 10 claim 12). Everett does not disclose 2 or more layers with the outer (second) layer to have a higher amount of chromium carbide than the lower (first) layer. Everett does disclose that increased chromium concentration improves corrosion resistance. Quets discloses a seal for turbine engine parts comprising a duplex coating with a lower layer of carbides in a matrix material and including chromium along with an upper abrasive layer. Quets discloses that the first coating should provide good bond strength and the topcoating should provide good wear resistance and spall resistance. Quets discloses the top coat may be chromium carbide and further discloses addition of chromium to the bottom coat. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide a duplex coating such as in Quets or a multiple layer coating using chromium carbide coatings as in Everett with the lower coating being made of chromium carbide in a cobalt matrix with a higher amount of cobalt and thus lower amount of chromium carbide and the upper coating having a higher amount of chromium carbide. Said lowest coating with a highest amount of cobalt and thus lowest amount of chromium carbide would provide good adhesion to the generally nickel or cobalt superalloy turbine components while said upper layer with a highest amount of chromium carbide, subject to corrosion in use, would display an improved corrosion resistance. It would be obvious to configure intervening layers to contain cobalt in continuously decreasing amounts and chromium carbide amounts in continuously increasing amounts to fortify these desirable inner and outer attributes.

Regarding claim 8, Everett and Quets disclose all of the limitations of claim 1 but do not explicitly application of the coating to both parts. However, it would have been obvious to a

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person having ordinary skill in the art at the time of the invention to apply the coating to both surfaces because mere duplication of parts has no patentable significance unless a new and unexpected result is produced *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Regarding claims 9-10, Quets discloses coating thicknesses of 30-2032 $\mu$ m and a ratio of a top coat thickness to a lower coat thickness to be from 6:1 to 1:3 (600%-33%) overlapping the claimed range of overall thickness of upto 400 $\mu$ m and an upper layer of 25-75% of the thickness of the lower layer. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

Regarding claims 11 and 12, Everett discloses an abrasive volume % of upto 50% overlapping the claimed ranges for both layers. Additionally, it would have been obvious to a person having ordinary skill in the art at the time of the invention to adjust the volume percentage of chromium carbide in each layer for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

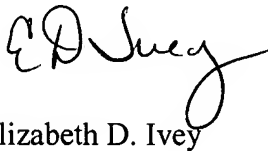
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***Conclusion***

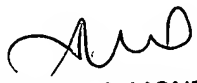
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Ivey whose telephone number is (571) 272-8432. The examiner can normally be reached on 7:00- 4:30 M-Th and 7:00-3:30 alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Elizabeth D. Ivey



JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER  
6/2006